A Discussion of Past, Present, and Future Articulation Models at Postsecondary Institutions

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Abstract

This article provides a synopsis of how articulation agreements serve postsecondary education institutions and their constituents, provides an overview on the types of agreements, and discusses some of the issues associated with development of these agreements. The following questions frame the narrative: As community colleges grew in number and format, what prompted the development of articulation agreements? What types of articulation agreements have been and are currently being developed? What are the incentives for either administrators or faculty to pursue development of articulation agreements?

Introduction

The growth in the number and type of articulation agreements and transfer arrangements between two- and four-year institutions during the past 100 years could be described as a work in progress. Procedures to move students progressively along the education continuum have become increasingly formal, yet the overriding objective has been to give students expanded access to learning opportunities at a reasonable cost. As a result, students, faculty, and administrators at community colleges and four-year institutions have usually experienced positive outcomes. Students, the key benefactor of these agreements, are offered new avenues of academic opportunity to pursue upon completion of their studies at the community college. Administrators at four-year institutions have access to a broader student population, thus experiencing growth in enrolled student numbers. Administrators at community colleges gain the opportunity to promote the articulated programs as pathways to bachelor degrees for students with the desire to transfer after graduation. Faculty are afforded insight into curricular content and trends at partnering institutions, giving impetus to integration of emerging issues or affirming the relevance of existing curricula.

The Need for Establishing Formal Articulation Agreements

Transfer programs have been part of the academic landscape at the postsecondary level since the inception of the junior college in the 1900s. These early institutions were usually an extension of the local high school curriculum offering freshman- and sophomore-level college courses as well as advanced instruction in occupational and life skills, such as industrial arts or family and consumer sciences (Wattenbarger & Witt, 1995). In 1947, President Harry Truman's Commission report "Higher Education for American Democracy" concluded that community colleges could offer cost-effective alternatives for lower and middle class populations enabling completion of the first two years of college or university education and, additionally, providing occupational training for American workforce needs of the post - World War II economy (Young, 1996). The number of community colleges rapidly expanded as a result of state or local funding rather than federal initiatives and as a result, the number of associate's degrees conferred from community colleges grew rapidly, surpassing 100,000 per year in the mid - 1960s, and the trend is expected to continue as noted in Figure 1 (U.S. Department of Education, 2005).

Most community college students during the 1950s and 1960s sought lower-level college arts and science general education courses with the intent to transfer to a senior institution (Bryant, 2001; Cohen, 2001; Young, 1996). Student transfers to four-year institutions peaked in the 1960s, accounting for nearly two-thirds of community college students enrolled at that time (Kintzer & Wattenbarger, 1985). After this period of growth, transfer rates of students to four-year institutions steadily declined and bottomed out at 22 percent in 1984 and remain at this level today (Bryant, 2001).

Much of the reason for the decline in transfer rates was that the constitution of the student population at two-year degree granting institutions had evolved to follow the non-academic occupational training track rather than being the more traditional student seeking the bachelor's degree at another higher education institution after two years at the community college. Thus, while the number of associate degrees awarded in the United States consistently increased, within this data the percentage of

occupational/technical program enrollees surpassed academic program enrollees in the mid 1970s.

Figure 1. Earned Associate and Bachelor's degrees, 1965–2004 with projections for 2010. Source: U.S. Dept. of Education, National Center for Education Statistics, Table 286 (2005).
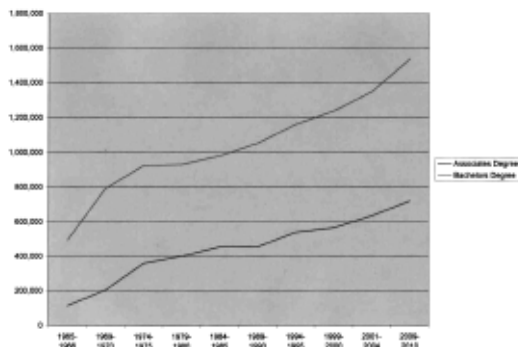
An additional problem was that transfer arrangements were usually informal, often developed as a courtesy between regional institutions or as a cooperative endeavor between administrators. This exacerbated the transfer rate decline because students often lacked guidance on how to transfer courses, appropriate senior institutions for their skills/academic preparation, or career path selection (Menacker, 1975). The need for more formal arrangements, articulation agreements, was evident.

Articulation agreements have had a rather short history within the context of the two-year college movement. In 1971, four states simultaneously developed similar approaches to articulation; Florida launched the Florida Formal Agreement Plan, the Illinois Board of Higher Education approved an articulation/transfer plan, and Texas and Georgia adopted core curricula for their respective state colleges (Kintzer & Wattenbarger, 1985). By the end of the decade, a large number of states had endorsed some form of articulation or transfer agreement for students in two-year programs.

Current Articulation Models

Today, every state has some form of articulation or transfer program in place and, likewise, there are many ways to characterize these mechanisms for movement of students between academic programs (Ignash & Townsend, 2000, 2001; Kintzer & Wattenbarger, 1985). To distinguish between articulation and transfer

programs, *articulation* is described as a formal collaborative agreement between education institutions that enables a student to complete a program of study at one institution and, using accumulated credits, attain a degree at another institution in a shorter period of time. There are those who further differentiate articulation as being vertical (progress to higher levels of academic achievement) or horizontal (internal transfer of credits within a system or at the same level at another institution), each having its place under the articulation heading (DeMott, 1999; Menacker, 1975). Transfer programs, which are more informal, acknowledge credits taken at one institution, not necessarily as part of a completed program or degree, that are subsequently accepted by another institution.

In a study evaluating the extent and strength of state-level articulation agreements, Ignash and Townsend (2001) found that 97 percent of the states responding to the survey had policies in place that supported the traditional two- to four-year transfer arrangement. Articulation between two-year colleges, between four-year colleges or universities, reverse transfers (four to two year programs), and agreements between public institutions were variations on this theme (see Figure 2). The researchers also found that 67 percent of responding states accepted associate degrees in the articulation agreements and 70 percent had distribution requirements for general education core courses within the state (p. 184).

Figure 2. Numbers of statewide articulation agreements. Adapted from Ignash & Townsend (2001).
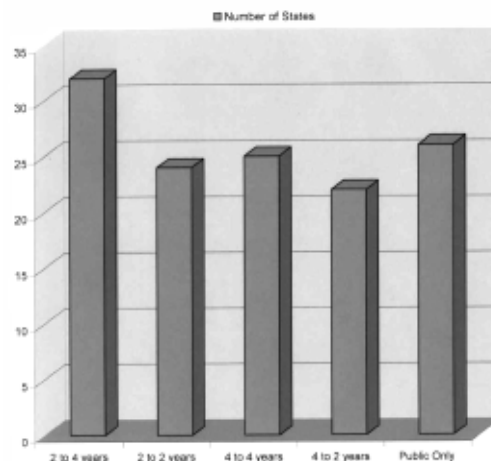
Emerging trends in articulation indicate that the Tech Prep movement is having an impact in reshaping traditional agreement structures due,

in part, to the requirements put forth by the Perkins Act of 1991 (Reese, 2002). The Act served to push states without firm articulation plans to develop plans to serve Tech Prep programs or risk losing federal funding. As an example of articulation across secondary and postsecondary systems, the 2 + 2 + 2 Tech Prep option's goal is to provide a seamless transition from high school to the community college technical degree, adding a twist with the last +2 component, which culminates in the conferral of a bachelor's degree from a college or university (Suba, 1997).

Bringing these diverse interests together to make the 2 + 2 + 2 alternative or any career-to-work program succeed is a challenge. In order to successfully develop agreements between secondary and postsecondary programs, a champion at one or more institutions involved in the process may be required. DeMott (1999) suggested that an individual coordinator serve as go-between or primary contact for the articulation process bringing administrative leaders, faculty, and curriculum planners together.

A typical 2 + 2 program consists of a student taking two years of courses at a community college and transferring them to a 4-year institution into a specific degree program. In theory, after transferring the student would have 2 years of coursework to complete to earn a bachelor's degree; however, in reality the length of time at the 4-year institution is closer to 2 + years. In comparison, a 2 + 2 + 2 program consists of approving specific courses taken in high school for coursework at the community college, reducing the time and courses needed to complete. The courses would then be articulated into a 4-year program for the completion of the final two years of study.

Other ways that articulation agreements have been constructed include block transfer of courses, experiential learning credits, dual credit programs and prorated audit systems. Instead of the traditional progression of students from two- to four-year institutions, reverse articulation (four-year to two-year), swirling (dual enrollment or taking courses at a community college and at a university concurrently or in an alternating fashion), public to private institutional articulation, and between four-year institutions are some examples. These are innovative ways to move students within the domain of postsecondary learning experiences.

At present, there appears to be a paradigm shift in the method and philosophy for student learning in the postsecondary education environment. This paradigm shift in higher education is occurring from an instructional paradigm to a learning paradigm (Barr & Tagg, 1995). The instructional paradigm can be described as the "sage on stage," and learning is dispensed or delivered solely by an instructor. The learning paradigm, on the other hand, is characterized by the "guide on the side." Learning is holistic and is focused on learning environments, experiences, and is student centered. To truly provide a broad array of formal education opportunities for students, education is being restructured with innovation, flexibility, and cooperative learning environments. Redefining what constitutes an articulation agreement is essential for change and progress to occur. In the end, the need for more effective use of increasingly limited resources such as faculty, classroom space, and laboratory equipment will drive the change process. Faculty and administrators with the foresight to take advantage of this dynamic situation in postsecondary education will reap the benefits early and have a voice in the shape of future agreements.

At the University of Northern Iowa (UNI), there have been over 330 articulation agreements written with all 15 community colleges within the state of Iowa. The two types of articulation agreements used at UNI are block transfer of courses from the community college to the university, or a program that is assessed on a course-by-course basis. The total combined transfer credit in college parallel education and equivalent UNI credit for technical-level work may not exceed 65 semester hours. All of the articulation agreements written at UNI are four pages in length. The first page of the agreement includes general information stipulating that the agreements are based on an analysis of program requirements as stated in the community college and university catalogs. In addition, the first page of the agreement states the names of the representatives that developed the articulation agreement and has signatures of approval for both cooperating institutions. Page two of the agreement contains the specific course-by-course outline of the agreement for the remaining requirements to complete a bachelor's of science degree as outlined in Figure 3.

Articulation Agreement
XYZ Community College: A.A.S. Program – Manufacturing Technology
UNI: B.S. Manufacturing Technology - Automation and Production, Design, or Metal Casting

The remaining requirements for students completing the A.A.S. Program in Manufacturing Technology seeking to complete a B.S. in Manufacturing Technology are stated below. All courses in the Manufacturing Technology major are listed except for the Liberal Arts Core and University Elective requirements. Transferring students must select one or more emphasis areas in the Manufacturing Technology program. Courses marked with an "X" are remaining requirements in the major.

Math/ Science..............15 hours   Block Transfer _____   Course by Course __X__

__X__   (4 SH) 800:046 Elementary Analysis or 800:048 Condensed Calculus or 800:060 Calculus I

__X__   (3 SH) 800:072 Intro. to Statistical Methods

__X__   (4 SH) 860:044 General Chemistry I

__X__   (4 SH) 880:054 Physics I or 880:130 Physics I for Science and Engineering

See Recommendations (4th page) for Math/Science courses that could be taken at XYZ Community College to count towards the program.

Technical Core.............38 hours   Block Transfer _____   Course by Course __X__

__X__   (2 SH) 330:008 Manufacturing Materials & Processes – Metals

__X__   (2 SH) 330:009 Manufacturing Materials & Processes – Non-metals

_____   (3 SH) 330:017 Computer Aided Design & Drafting

_____   (4 SH) 330:024 Technical Drawing & Design I

_____   (3 SH) 330:060 Fundamentals of Automated Mfg.

__X__   (1 SH) 330:112 Industrial Projects I

__X__   (3 SH) 330:132 Applied Metallurgy

__X__   (3 SH) 330:142 Statistical Quality Control

__X__   (3 SH) 330:143 Managing Manufacturing Systems

__X__   (3 SH) 330:170 Statics and Strengths of Materials

__X__   (3 SH) 330:172 Industrial Materials

__X__   (1 SH) 330:179 Cooperative Education

__X__   (3 SH) 330:187 Applied Industrial Supervision & Management

__X__   (3 SH) 330:196 Industrial Safety

__X__   (2 SH) 330:197 Industrial Projects II

Emphasis Areas...........22 hours   Block Transfer _____   Course by Course __X__

Automation & Production

_____   (3 SH) 330:014 Machining Principles

_____   (3 SH) 330:113 Manufacturing Tooling

__X__   (3 SH) 330:145 Work Measurement & Improvement

_____   (3 SH) 330:146 Advanced Numerical Control Systems

_____   (3 SH) 330:147 Computer-Aided Manufacturing

_____   (3 SH) 330:177 Advanced Manufacturing Processes

_____   (4 SH) 100 - level electives **(see below)**

Design

_____	(2 SH) 330:106 Geometric Dimensioning & Tolerancing
_____	(3 SH) 330:113 Manufacturing Tooling
__X__	(3 SH) 330:122 Advanced Modeling & CAD
__X__	(3 SH) 330 :135g Design for Manufacturing
__X__	(3 SH) 330:148 Machine Design
__X__	(3 SH) 330:155g Finite Element Analysis
_____	(5 SH) 100 - level electives **(see below)**

Metal Casting

__X__	(2 SH) 330:040 Fundamentals of Metal Casting Engineering Technology
__X__	(3 SH) 330:134 Molding Practices in Metal Casting
__X__	(3 SH) 330:136 Melting Practices in Metal Casting
__X__	(3 SH) 330:137 Tooling Practices in Metal Casting
__X__	(3 SH) 330:141 Foundry Research Practicum
__X__	(3 SH) 330:192 Non-Destructive Evaluation of Materials/Scanning Electron Microscopy
_____	(5 SH) 100 - level electives **(see below)**

Choose electives from any 100-level course in the Industrial Technology Department or 150:113; 150:119; 48C:141; 48C:173; 620:105; 650:142; 800:043; 980:102

Figure 3. Sample block transfer agreement.

Page three of three of the articulation agreement shows the breakdown of hours required for the major at the university, explains the hours accepted from the community college, and outlines the remaining hours for the degree program for the different emphases. It also includes some general rec-ommendations for specific courses students could take at the community college to further reduce the remaining hours at the university as outlined in Figure 4:

Articulation Agreement
XYZ Community College: A.A.S. Program – Manufacturing Technology
UNI: B.S. Manufacturing Technology - Automation and Production, Design, or Metal Casting

Total Semester Hours (SH) for a B.S. in Manufacturing Technology

Total for Major	75 SH
Liberal Arts Core	38 SH
Total University Electives	<u>13 SH</u>
Total Hours, Bachelor of Science	126 SH

Semester Hours Accepted from ICCC

Math / Science	0 SH
Technical Core	11 SH
Liberal Arts Core	0 SH
Emphasis Area:	
Automation & Production	19 SH
Design	10 SH
Metal Casting	5 SH
University Electives	<u>13 SH</u>
Total	43 (AP), 34 (D), 29 (MC) SH *depending on selected emphasis area*

Remaining Hours at UNI – select one of the following emphasis areas:

Automation & Production (AP)	45 SH
Liberal Arts Core	38 SH
University Electives	0 SH
	83 SH
Design (D)	54 SH
Liberal Arts Core	38 SH
University Electives	0 SH
	92 SH
Metal Casting (MC)	59 SH
Liberal Arts Core	38 SH
University Electives	0 SH
	97 SH

Recommendations:

The following courses will reduce the number of hours needed to graduate:

1. If the student takes MAT-125 Principles of Statistics 1 as an elective, this will substitute for 800:072 in Category 1C in the LAC. MAT-166 Calculus and Analytic Geometry 1 will substitute for 800:060 in Category 1C in the LAC as well.
2. Taking the following optional courses in the A.A.S: ENG-101 & ENG-102 English 1 and 2 will meet 620:005 College Reading and Writing requirement 1A, PSY-151 General Psychology will meet 400:001 category 5B, SOC-121 Principles of Sociology will meet 980:001 category 5A.
3. PHY-157 General Physics I or PHY-161 Physics 1 can be used to satisfy requirements in the Math/Science Core of the Manufacturing Technology program in addition to satisfying the Liberal Arts Core Category 4B (includes lab requirement).
4. CHM-133 General Chemistry 1 or CHM-121 & CHM-122 General Chemistry & General Chemistry lab can be used to satisfy the Math/Science Core of the Manufacturing Technology program in addition to satisfying the LAC 4B (includes lab requirement). If a student takes both the Physics and Chemistry courses only one of these courses can be used in the Liberal Arts Core Category 4B but the other course can be applied to University Electives.

Figure 4. Sample block articulation agreement.

The fourth page of the articulation agreement includes approximately nine general advisory statements for transfer students. The advisory statements consist of items such as minimum grade requirements for admission to UNI, maximum number of approved technical courses accepted by UNI, and other general provisions for completing a four-year degree.

Incentives to Pursue Articulation

The reasons to make articulation agreements depend largely on the expectations of the participants and actual or perceived benefits derived from the process. The most important reason for developing articulation agreements is to improve access: giving students more options and smoothed pathways to achieving degree completion. This is also relevant to the central mission of the community college system - to provide service to local citizenry in the form of occupational or vocational training, remedial education, college preparatory courses, and specialized community service (McDuffie & Stevenson, 1995; Wattenbarger & Witt, 1995). Articulation agreements complement traditional community college roles by providing greater access to education in addition to their already established open-door admission policies, lower cost per credit, ability to live at home while working on a degree, and more extensive academic advisory support (Bryant, 2001; Cohen, 2001). Administrators can successfully market articulation agreements as another example of service to their constituency.

Altruistic incentives aside, the ability to increase the productivity of staff, faculty, and classroom or laboratory resources is a strong motivator for administrators trying to stretch shrinking budgets. Administrators at two- and four-year institutions seeking articulation agreements can benefit through improved student

retention rates and cost savings by focusing course offerings from their respective institutions (Reese, 2002). Having one institution offer core classes or specialized education while the partnering institution supports prerequisite or capstone courses in a discipline can conserve effort, alleviate classroom space problems and improve faculty productivity by elimination of duplicate course offerings.

Faculty who participate in the development of articulation agreements can gain valuable insight into the methods, content, and efficacy of cohort programs. The collaborative environment required to make good articulation agreements opens the door for the exchange of ideas and mutually beneficial program development. Rather than expecting administrators to shepherd the articulation agreement through the system, it is important that faculty take responsibility for the process. As one of seven guiding principles for assessing the strength of state articulation agreements, Ignash and Townsend (2001) argued that faculty are the best judges of the quality in the curriculum. "Faculty from both two-year and four-year institutions have primary responsibility for developing and maintaining articulation agreements. As the content area experts, faculty should develop articulation agreements" (p. 178). Faculty ultimately determine the content, focus, and desired outcomes of the curriculum and, therefore, are in the best position to determine equivalency in order for the articulation process to be successful for students and institutions alike.

Conclusion

Building ties between academic institutions through the articulation agreement is a growing need in society where individuals who have completed degrees are not only desired, but also required. Universities, colleges, community colleges, and even high schools have a vested interest in the future growth of programs that offer less resistance to transition between successive levels of education. The need for a well-defined and accessible system for students who either elect to take or must take an alternative path to the bachelor's degree is apparent. Institutions that lag behind or choose to ignore this growing trend of articulated programs, do so at their own risk.

This is not to say that the articulation agreement process or its outcomes are without problems, but are minor deterrents when compared to the extensive benefits derived by students, faculty, administrators, institutions, and, ultimately, national educational achievement. We believe that articulation has a role to play in future iterations of higher education. The form and expected outcomes depend on faculty, institutions, and government mandates. The needs of students and ultimately society, however, will determine how this comes to pass.

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References

Barr, R. B., & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education. *Change, 11,* 13-25.

Bryant, A. N. (2001). ERIC review: Community college students: recent findings and trends. *Community College Review, 29* (3).

Cohen, A. M. (2001). Governmental policies affecting community colleges: A historical perspective. In B. K. Townsend and S. B. Twombly (eds.), *Community colleges: Policy in the future context* (p. 3-22). Westport, CT: Ablex Publishing.

DeMott, J. (1999). Seven steps to articulation success. *High School Magazine, 6,* 22-24.

Ignash, J. M., & Townsend, B. K. (2000). Evaluating state-level articulation agreements according to good practice. *Community College Review, 28* (3), 1-21.

Ignash, J. M., & Townsend, B. K. (2001). Statewide transfer and articulation policies: Current practices and emerging issues. In B. K. Townsend and S. B. Twombly (eds.), *Community colleges: Policy in the future context* (p. 173-192). Westport, CT: Ablex Publishing.

Kintzer, F. C., & Wattenbarger, J. L. (1985). *The articulation/transfer phenomenon: Patterns and directions.* Washington, DC: American Association of Community and Junior Colleges.

Menacker, J. (1975). *From school to college: Articulation and transfer.* Washington, DC: American Council on Education.

McDuffie, L., & Stevenson, J. (1995). The American community college: providing pivotal points of progress for students. *College Student Journal, 29,* 264-269.

Reese, S. (2002). Articulation agreements: ease the way. *Techniques, 77,* 37-38.

Suba, T. (1997). Some basics for tech prep articulation. *Tech Directions, 56,* 14-15.

U.S. Department of Education (2005). Earned degrees conferred: Projections of education statistics to 2011. *Higher Education General Information Survey* (HEGIS), Table 286. Washington, DC: National Center for Education Statistics.

Wattenbarger, J. L., & Witt, A. A. (1995). Origins of the comprehensive community college. *Community College Journal of Research and Practice, 19,* 565-570.

Young, R. J. (1996). Legacy of the post-WWII growth years for community college leadership programs. *New Directions for Community Colleges, 95,* 5-14.